

What is claimed is:

1. A digital wireless communication apparatus comprising:
 - a first modulator that modulates a pilot symbol according to a first modulation scheme;
 - a second modulator that modulates specific symbols according to a second modulation scheme, the second modulation scheme being different than the first modulation scheme;
 - a third modulator that modulates symbols other than said pilot symbol and said specific symbols according to a third modulation scheme, the third modulation scheme being different than the first and second modulation schemes; and
 - a timing controller that controls timing such that said specific symbols are inserted immediately before and after said pilot symbol;wherein the signal points of the specific symbols are allocated on an imaginary line that connects the origin point and a signal point of the pilot symbol on a signal space diagram.
2. The digital wireless communication apparatus according to claim 1, wherein said third modulation scheme is selected from a 64QAM modulation scheme, a 16QAM modulation scheme, and a QPSK modulation scheme.
3. The digital wireless communication apparatus according to claim 1, wherein said pilot symbol signal point has an amplitude greater than the maximum amplitude of signal points modulated according to the third modulation scheme in the signal space diagram.
4. A digital wireless communication method comprising:

modulating a pilot symbol according to a first modulation scheme;

modulating specific symbols according to a second modulation scheme, the second modulation scheme being different than the first modulation scheme;

modulating symbols other than said pilot symbol and said specific symbols according to a third modulation scheme, the third modulation scheme being different than the first and second modulation schemes; and

controlling timing such that said specific symbols are inserted immediately before and after said pilot symbol.

5. The digital wireless communication method according to claim 4, wherein said third modulation scheme is a modulation scheme selected from a 64QAM modulation scheme, a 16QAM modulation scheme, and a QPSK modulation scheme.

6. The digital wireless communication method according to claim 4, wherein a signal point of the pilot signal has an amplitude greater than the maximum amplitude of signal points modulated according to the third modulation scheme in a signal space diagram.